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ABSTRACT

Intended for use with nine individualized learning modules (CE 017 441-449), this instructor's handbook is designed to assist vocational educators in conducting inservice programs relative to performance-based vocational education utilizing Vocational-Technical Education Consortium of States (V-TECS) catalogs. Included in this handbook are the following: notes on conducting the program; a suggested program sequence for the nine modules with approximate completion times (one to three hours each); an outline of each module (behavioral objectives, content, and evaluation method); a glossary of terms used in all nine; and copies of evaluation instruments (with answer keys) to be used as the checkout activity for each module. Titles of the nine modules are (1) Performance-Based Vocational Education in South Carolina; (2) Understanding Performance Objectives, Criterion-Referenced Measures and Performance Guides; (3) Selecting, Clustering and Sequencing Performance Objectives and Supplemental Objectives; (4) Developing a Delivery System; (5) Individualizing Performance-Based Vocational Education; (6) Evaluating Students on Perfcrmance-Based Vocational Education Programs; (7) Designing Modules for Self-Pacing; (8) Managing Self-Paced Instruction; and (9) Using V-TECS Catalogs in Contemporary Programs to Make Them Performance-Based. (JH)

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participant achieves this performance level

ED159382

IMPLEMENTING PERFORMANCE-BASED VOCATIONAL EDUCATION UTILIZING V-TECS CATALOGS

INSTRUCTOR'S HANDBOOK

State Department of Education
Office of Vocational Education
Columbia, South Carolina 29201

In Cooperation With

Vocational Education Media Center
Clemson University
Clemson, South Carolina 29631

1978

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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INTRODUCTION

This handbook is designed to assist vocational educators in conducting inservice programs relative to performance based vocational education utilizing V-TECS catalogs. This handbook and 9 individualized instructional modules were developed as a part of the project, Developing a Statewide Implementation Capability for the Effective Utilization of Catalogs of Performance Objectives and Criterion-Referenced Measures Compiled by the Vocational-Technical Education Consortium of States.

As a result of the project, the state will have a nucleus of teachers prepared to utilize the self-instructional inservice education programs with other teachers in their school districts. The project should also provide a recommended, unified teacher-education approach to teacher educators and all teachers utilizing the V-TECS catalogs in the state.

CONDUCTING ON–GOING INSERVICE EDUCATION PROGRAMS FOR EFFECTIVE UTILIZATION OF V–TECS CATALOGS

This handbook and the accompanying modules were developed for use in training administrators, teachers, and prospective teachers in the effective utilization of V-TECS catalogs of performance objectives, criterion-referenced measures and performance guides. Inservice education programs are to be conducted primarily by vocational teachers who participated in the master-teacher workshop, "Implementing Performance-Based Vocational Education Utilizing V-TECS Catalog," June 5 - 9, 1978 at Clemson University. In addition to the initial inservice program thoughout the state, master teachers will provide an on-going program of inservice education in the schools as new instructors arrive and as review is needed for V-TECS catalogs.

Modules developed for use in this inservice education program are as follows.

Module Number	Title
1	Performance Based Vocational Education in South Carolina
2	Understanding Performance Objectives, Criterion-Referenced Measures and Performance Guides
3	Selecting, Clustering and Sequencing Performance Objectives and Supplemental Objectives
4	Developing a Delivery System
5	Individualizing Performance-Based Vocational Education
6	Evaluating Students on Performance-Based Vocational Education Programs
7	Designing Modules for Self-Pacing
8	Managing Self-Paced Instruction
9	Using V-TECS Catalogs in Contemporary Programs to Make Them Performance-Based

These modules may be used with individuals or with groups. It is recommended that the group be left small enough so that it is manageable. The maximum number of participants in a workshop probably should be no more than fifteen.

The nine modules are content complete. Thus, as a managing instructor your major responsibility will be to administer and grade the test which is the check-out activity for each module. Students will record answers on a separate answer sheet. Be sure you have the participant sign his/her name, date the answer sheet, and turn it in with the test sheet to you. You will grade the test. The answer keys are located in this handbook. If the participant does not complete a test with 100 percent accuracy, you should advise him/her to study the material relating to the test item or items missed. In some cases, you may wish to prescribe alternative learning activities. When the participant is ready to take the test again, you will issue him/her another answer sheet and test form. Again, be sure that the participant's name and the date is filled in when the forms are returned to you.

The answer sheets are the only materials which are consumable. The modules themselves and test forms are designed for reuse.

Self-Tests are a part of each module. The participant is directed to respond to self-checks by recording answers on a separate sheet of paper. In conducting inservice training, you may wish to remind participants to avoid writing on the modules. After the participant has successfully completed each module, ask that he or she go through the module and remove any marks or notes he/she may have made inadvertently.

Enrichment activities can be used during the inservice. For example, a visit to a vocational program which is implementing performance-based vocational education may be helpful. A 16mm film series on "Instructional Technology: The State of the Art" has been found very helpful in reinforcing concepts and setting the stage for discussion groups. The films used in the master-teacher workshop at Clemson University, June 5 - 9, 1978, included the following topics.

TF6700, "Instructional Systems Development: The Process" (27 min).

TF6701, "Criterion Objectives: The Key to Success" (16 min).

TF6702, "Criterion-Referenced Testing" (19 min).

TF6703, "Individualized Instruction" (19 min)

TF6704, "The Changing Role of the Instructor" (11 min).

These films are available for free loan from audiovisual libraries located at most Air Force bases. Organizations not within convenient distance of an Air Force base for local over-the-counter film service should contact USAF Central Audiovisual Library, Audiovisual Service, Norton AFB, CA 92401 for ordering instructions and request forms.

The suggested program sequence for the mini workshop is similar to that used in the master-teacher workshop. See the next page for the program sequence.

PROGRAM SEQUENCE

Implementing Performance-Based Vocational Education Utilizing V-TECS Catalogs of Performance Objectives, Criterion-Referenced Measures and Performance Guides

Module Number	Title	Suggested Sequence
1	Performance-Based Vocational Education in South Carolina	1
2	Understanding Performance Objectives, Criterion-Referenced Measures and Performance Guides	2
3	Selecting, Clustering and Sequencing Performance Objectives and Supplemental Objectives	3
4	Developing a Delivery System	4
5	Individualizing Performance-Based Vocational Education	5
6	Evaluating Students on Performance-Based Vocational Education Programs	6
7	Designing Modules for Self-Pacing	7
8	Managing Self-Paced Instruction	8
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An alternative approach to the suggested sequence above is to follow module one and two with module nine, using V-TECS catalogs in Contemporary Program. In this case, the suggested sequence would read modules 1, 2, 9, 3, 4, 5, 6, 7, and 8.

As you develop plans for conducting mini-workshops for vocational education teachers and other personnel in your district, you may find the following approximate times for use of the modules helpful.

Based on figures kept by participants of the master teacher workshop, the longest time required for completion of the modules was nineteen hours. The average time required by participants was fifteen hours. The shortest period of time was approximately six hours. You will recall that workshop participants participated in field trips, viewed five 16mm films, and participated in large and small discussion groups as well as completing the nine modules.

APPROXIMATE TIMES FOR USE OF INDIVIDUALIZED INSTRUCTIONAL MODULES

Module	Approximate Time
1	1½ hours
2	2 hours
3	2 hours
4	1 hour
5	2 hours
6	3 hours
7	3 hours
8	2 hours
9	2½ hours

These approximate times for use of the individualized modules are included to aid you in planning an agenda for inservice workshops. Keep in mind that materials are self-paced and time will vary for individual participants.

Materials, reports, and other information you will be needing for these inservice programs will be available through the Program Section, Curriculum Coordinator, Office of Vocational Education, State Department of Education, Columbia, S.C. 29201. The Curriculum Coordinator is responsible for coordinating the state wide inservice education programs for the effective utilization of V-TECS catalogs.

MODULE-BY-MODULE REVIEW

Module 1 — Performance-Based Vocational Education in South Carolina

Module One identifies the major concepts involved in performance-based education as well as the basic changes needed for implementing an educational program which is more nearly performance-based.

The instructional content covers:

1. Terminology
2. Accountability as a tool for improvement
3. Implementing performance-based vocational education
4. The ideal fully individualized, self-paced approach
5. A systematic approach to implementing performance-based vocational education
6. A case study
7. PBVE rating chart.

The participants are asked to give:

two reasons for an interest in performance-based education.

the three major approaches to implementing performance-based vocational education.

the three major concepts involved in performance-based vocational education.

two scheduling techniques facilitated by performance-based vocational education.

The participants are also asked to match the steps in the plan for implementing performance-based vocational education with a description of each step and to classify a list of characteristics as to non-performance-based vocational education and performance-based vocational education.

The glossary self check, and model critique of the case study aid in reinforcing basic terminology and concepts presented. The personal self check, "Do You Really Have A Performance-Based Program?" is designed to help the participant focus attention not only on the characteristics of his/her own program but also on the components of performance based vocational education.

The check-out activity consists of multiple choice, matching, and classifying questions which pertain to the objectives stated at the beginning of the module. As managing instructor, you will distribute and correct the test. When the participant achieves 100% accuracy on the test, direct him/her to proceed to the next module. Until the participant achieves this performance level you will direct him/her to recycle through the instructional content appropriate to the questions missed on the test.

Module 2 — Understanding Performance Objectives, Criterion-Referenced Measures, and Performance Guides

Module Two describes briefly how V-TECS catalogs are developed and how performance objectives, criterion-referenced measures, and performance guides are used.

The instructional content covers:

1. Terminology
2. V-TECS catalogs as a source of performance objectives, criterion referenced measures and performance guides
3. Performance objectives
4. Performance guides
5. Criterion-referenced measures

The participants are asked to identify:

the major purpose of V-TECS

five elements of a V-TECS catalog

a performance objective and each of the three components comprising the objective

uses of performance objectives

a criterion-referenced measure

uses of the criterion-referenced measure

a performance guide

the proficiencies and attitudes necessary for completing a performance objective.

The self-checks which follow the glossary and sections I - IV are designed to reinforce concepts presented in the module. In addition the self-checks give the participant immediate feedback on how well he or she is performing on each topic as it is presented.

The check-out activity consists of multiple choice questions pertaining to each of the module objectives stated on page one of the module. As managing instructor, you are responsible for distributing and correcting the test. The participant proceeds to the next module when she/he achieves 100% accuracy on the test which you are to correct. Until the participant achieves this performance level you direct her/him to recycle through the instructional content applicable to the question or questions missed on the test.

Module 3 — Selecting, Clustering and Sequencing Performance and Supplemental Objectives

Modules Three, Four, and Five provide suggestions for designing and developing curricula using the V-TECS catalogs as the major source for expression of objectives. Module Three specifically provides suggestions for selecting, clustering or grouping, and sequencing performance and supplemental objectives.

The instructional content covers:

1. Terminology
2. Selecting performance and supplemental objectives
3. Clustering performance and supplemental objectives
4. Sequencing performance and supplemental objectives.

The participants are asked to give:

reasons for deleting performance objectives from a V-TECS catalog.

the characteristics of performance objectives provided in V-TECS catalogs.

criteria for clustering or grouping performance objectives into units of instruction.

guidelines for sequencing performance objectives or tasks within a unit or cluster.

The self-checks following the glossary and the three topics covered in this module afford the participant immediate feedback regarding his/her performance. If the participant finds he/she is not performing well on the self-checks he/she may study the topic more thoroughly before moving to the next section of the module.

Again, the check-out activity consists of multiple choice questions which pertain to the objectives stated at the beginning of the module. As managing instructor, you are responsible for distributing and correcting the test. When the participant achieves 100% accuracy on the test, you will provide her/him with the subsequent module. Until the participant achieves this performance level, you are responsible for directing her/him to recycle through the instructional content applicable to the questions missed on the test.

Module 4 – Developing A Delivery System

Module four addresses the major methods of instruction (group or self-paced) and suggests the types of materials, equipment, facilities and lesson plans needed for each of these methods.

The instructional content covers:

1. Terminology
2. Selecting a method of instruction for performance-based vocational education
3. Selecting a management plan format
4. Selecting media, facilities and equipment

The participants are asked to identify:

> criteria for selecting a method of instruction (group or self-paced) for a given task
>
> essential elements of a module to be used for self-paced instruction
>
> the major differences in media, equipment and facilities requirements for Performance-Based Vocational Education programs and non-Performance-based Vocational Education programs.
>
> the major differences in media, equipment and facilities requirements for instruction via the group method and those required by the self-paced method.

The glossary self-check and the self-check on selecting a mode of instruction provide the participant with information relative to how she/he is mastering the concepts presented. Again, if the participant finds that he/she is not performing well on the self-checks, he/she may study the topics more thoroughly before moving to the next section of the module.

Again, the check-out activity consists of multiple choice questions which pertain to the objective stated at the beginning of the module. As managing instructor, you are responsible for distributing and correcting the test. When the participant achieves 100% accuracy on the test, you will provide her/him with the subsequent module. Until the participant achieves the performance level, you are responsible for directing her/him to recycle through the instructional content applicable to the questions missed on the test.

Module 5 – Individualizing Performance-Based Vocational Education

Module Five addresses forms of individualized instruction and how each form might benefit current vocational programs.

The instructional content covers:

1. Terminology
2. Individualized instruction
3. Forms of individualized instruction
4. Basic principles of individualized instruction
5. Suggestions for individualizing instruction
6. The teacher's role in individualized instruction.

The participants are asked to give:

> the advantages of both group and individualized instruction
>
> the basic principles upon which individualized instruction is built
>
> the suggested procedures for individualizing instruction in vocational education
>
> the role of the teacher in individualized instruction

As in the preceding modules, the glossary self-check provides immediate feedback to the participant. In addition the participant is asked to read a case study and compare his/her response with the model response. In addition, the individualization rating scale allows the participant the opportunity to focus on his own program as well as the

concepts of individualization presented in the module.

Again, the check-out activity consists of multiple choice questions which pertain to the objectives stated at the beginning of the module. As managing instructor, you are responsible for distributing and correcting the test. When the participant achieves 100% accuracy on the test, you will provide her/him with the subsequent module. Until the participant achieves this performance level, you are responsible for directing her/him to recycle through the instructional content applicable to the questions missed on the test.

Module 6 – Evaluating Student in Performance-Based Vocational Education Programs

Module Six presents strategies for evaluating students in performance-based vocational instruction and suggestions for record keeping in performance-based programs.

The instructional content covers:

1. Terminology
2. Role of evaluation in PBVE
3. Evaluation via performance testing
4. Evaluating cognitive learning via written tests
5. Evaluating affective learning
6. Grading alternatives
7. Recording results

The participant is asked to give:

the basic measure of evaluation in a performance-based system.

the three major types of performance evaluation.

the characteristics of six levels of learning.

the five major types of objective tests.

the major characteristics of affective evaluation.

the major characteristics of five grading alternatives.

the major records that are used to chart student progress in a performance-based system.

the major characteristics of the three forms of performance evaluation checklists.

the major evaluation devices used for measuring attitudes.

The five self-checks in this module provide the participant with multiple opportunities for performance feedback. If the participant finds he/she is not performing well on the self-checks he/she may study the topic more thoroughly before moving to the next section of the module.

Again, the check-out activity consists of multiple choice questions which pertain to the objectives stated at the beginning of the module. As managing instructor, you are responsible for distributing and correcting the test. When the participant achieves 100% accuracy on the test, you will provide her/him with the subsequent module. Until the participant achieves this performance level, you are responsible for directing her/him to recycle through the instructional content applicable to the questions missed on the test.

Module 7 - Designing Student Materials for Self-Pacing

Module Seven provides direction for designing a self-instructional module for self-paced instruction.

The instructional content covers:

1. Terminology
2. Format
3. Title
4. Introduction

5. Directions
6. Objectives
7. Learning activities
8. Instructional content
9. Student Self-check
10. Check-out activities
11. Instructor's Final Checklist.

The participant is asked to identify:

the components of a typical module

guidelines for writing

a. modules in general
b. the introduction
c. the directions
d. the objectives
e. the learning activities

functions of the self-check

types of self-checks

types of instructional content

appropriate check-out activities

appropriate items to be included in the Instructor's Final Checklist

guidelines for using illustrations

The three self-checks interspersed in the module provide the participant with opportunity to check his or her mastery of the content presented. In addition there is a glossary self-check. If the participant finds he/she is not performing well on the self-checks he/she may study the topic more thoroughly before moving to the next section of the module.

Again, the check-out activity consists of multiple choice questions which pertain to the objectives stated at the beginning of the module. As managing instructor you are responsible for distributing and correcting the test. When the participant achieves 100% accuracy on the test, you will provide her/him with the subsequent module. Until the participant achieves this performance level, you are responsible for directing her/him to recycle through the instructional content applicable to the questions missed on the test.

Module 8 – Managing Self-Paced Instruction

Module Eight offers suggestions for managing a self-paced program.

The instructional content covers:

1. Terminology
2. Managing self-paced instruction
3. The role of the instructor in self-paced instruction
4. Management of slow and fast learners in a self-paced performance-based program
5. Suggestions for starting a self-paced program
6. Record keeping and filing
7. Facilities for self-paced instruction
8. The use of simulators and kits

The participant is asked to identify:

a definition of self-pacing

two requirements of self-paced materials

alternate methods of self-pacing

the roles(s) of the teacher in managing a self-paced system.

the three categories for storing modules.

In addition, the participant will be asked to label characteristics of slow learners and more capable students, and techniques appropriate for teaching slower students and those more appropriate for the more capable students.

The two self-checks afford the participant immediate feedback regarding his/her performance. If the participant finds he/she is not performing well on the self-checks he/she may study the topic more thoroughly before moving to another part of the module.

Again, the check-out activity consists of multiple choice questions which pertain to the objectives stated at the beginning of the module. As managing instructor you are responsible for distributing and correcting the test. When the participant achieves 100% accuracy on the test, you will provide her/him with the subsequent module. Until the participant achieves this performance level, you are responsible for directing her/him to recycle through the instructional content applicable to the questions missed on the test.

Module 9 – Using V-TECS Catalogs in Contemporary Programs to Make Them More Performance-Based

Module Nine offers suggestions for validating, building or revising, and managing a contemporary program utilizing V-TECS catalogs of performance objectives, criterion-reference measures, and performance guides.

The instructional content covers:

1. Terminology
2. Validating a contemporary program using V-TECS catalogs
3. Buiding and revising a contemporary program using V-TECS catalogs
4. Managing a contemporary program using the V-TECS catalog.

The participant is asked to identify:

Procedures for validating a contemporary program for job relevance using V-TECS catalogs.

Aspects of programs accountability provided by V-TECS catalog.

Critical steps used when building a vocational program.

Appropriate attitudinal teaching approaches using V-TECS catalogs.

Resource materials provided by V-TECS catalogs.

Use of V-TECS catalogs by counselors and other teachers.

Use of modules in a contemporary program.

Devices useful in assessing student abilities.

Purpose of peer teaching.

Major types of in-class methods that are considered when managing a contemporary program.

Three appropriate records that may be used when keeping records in a contemporary program.

The glossary self-check and the self-check following each instructional topic afford the participant immediate feedback regarding his/her performance. If the participant finds he/she is not performing well on the self-checks he/she may study the topic more thoroughly before moving to the next section of the module.

Again, the check-out activity consists of multiple choice questions which pertain to the objectives stated at the beginning of the module. As managing instructor you are responsible for distributing and correcting the test. When the participant achieves 100% accuracy on the test, you will provide her/him with the subsequent module. Until the participant achieves this performance level, you are responsible for directing her/him to recycle through the instructional content applicable to the questions missed on the test.

GLOSSARY OF TERMS

Accountability – the theory that teachers and school systems may be held responsible for actual improvement in pupil achievement and that such improvement is measurable through tests of teacher effectiveness constructed by outside agencies. [1]

Advisory Committees – individuals who assist in the design or revision of a program based on their collective experiences.

Affective learning – behavior exhibited by the learner dealing with changes in attitudes, interests and values and development of appreciation and adequate adjustments.

Basic functional unit – a unit made up of tasks or activities common to several functional units.

Basic subject matter unit – a unit made up of subject matter (concepts, principles, facts) common to several subject matter units.

Carrel – a small desk or table enclosed on three sides used mainly to provide privacy when studying in a self-instruction program. Audiovisual media are often included in each cubicle.

Check-out activity – The performance a student must accomplish to prove mastery. It is often the performance objective when the actual accomplishment of such objectives are feasible. At times a special criterion-referenced measure is used when the performance of the actual objective is not feasible.

Cognitive learning – behavior exhibited by the learner dealing with recall and recognition of knowledge and the development of intellectual abilities and skills.

Criterion-referenced measure – an exercise based upon a performance objective and designed to measure attainment of that objective.

[1] Carter V. Good, ed., *Dictionary of Education* (New York: McGraw-Hill Book Company, 1973), pp. 5-6.

Cross-reference table – a table in a V-TECS catalog that identifies the relationship among duties and tasks found in the occupational inventory and the performance objectives in the final catalog. Also noted are time spent indices on all tasks by D.O.T. codes.

Diagnostic test – a test given to a student during the instructional process to aid in identifying student strengths and weaknesses relative to a given subject under study.

Delivery System – as used in this publication refers to a combination of methods used (group and self-paced) to implement performance-based education.

D.O.T. (Dictionary of Occupational Titles) Code – a nine digit number used to identify a specific job within a group of related jobs.

Domain – a group of related job titles.

Duty – a group of related tasks, within a V-TECS catalog, which constitute a major area or segment of work.

Educational Media – the means of communication that are available for educational purposes; do not usually include the live teacher, the student's peers, or other human resources, although the classroom teacher is the primary medium of instruction in most schools.

Evaluation checklist – supplementary aid to the performance objective standard which is used when a specified product or process is highly subjective.

Functional unit – a unit of instruction based on related real-life type activities or functions.

Incumbent worker – a person holding a job in the referenced occupational area.

Independent Study – a form of individualized instruction in which the learners are free to select both objectives and learning activities. Usually, but not always, the learner is given almost complete freedom of time.

Individualized Instruction – that organization of instruction and instructional materials which maximizes student freedom to learn in accordance with his/her own interest and needs.

Instructor's final checklist – a listing of the major steps involved in the performance of a task. It sometimes serves as the performance standard. It can be used as a diagnostic instrument to determine the need for additional knowledge or training.

Kit – a collection of tools, equipment materials (including printed materials), necessary for the accomplishment of a specified task or tasks. The collection is usually stored in a box.

Learning Activities – selected and planned activities or experiences which are made available to students to help them master an objective or a set of objectives. Such activities may include the full range of methodology and media used to enhance or serve as the delivery system for the chosen educational experiences.

Learning Activity Package – self-directional, self-instructional materials which contain provisions for the student to exempt or test-out on a specified objective or objectives. The student is usually directed to a variety of learning activities and to a variety of learning resources to obtain the information needed to accomplish the specified objectives. It does not usually contain, within its covers, instructional content, but instead refers the student to such content.

Learning Center – a learning environment which has been specifically developed to foster individualized instruction, and which emphasizes employment of media to augment textbooks and manuals. (Air Force Manual 50-2)

Learning station – an area of the classroom, shop or library set aside permanently or temporarily for the performance of a selected learning activity or activities.

Live project – a learning activity utilizing an actual situation or actual, functioning equipment.

Mastery – meeting all of the specified minimum requirements for completion of a learning task.

Mastery Teaching – a form of instruction which emphasizes the learner's total achievement of selected performance standards irregardless of the time required.

Module – self-directional, self-instructional materials which contain provisions for the student to exempt and test-out on a specified learning objective or objectives. It contains almost all or all information necessary for the student to accomplish the objectives specified, i.e., it is "content complete."

Norm-referenced test – a test used to determine how well a student performs a given task relative to other students in a class.

Objective evaluation – a measurement involving the use of facts without distortion by personal feelings and/or prejudices.

Open Entry – Open Exit – a provision for the student to enter an instructional program at any time as well as the opportunity to leave the program at any time with a documented record of the individual's performance. [2]

Peer Teaching – a method of instruction in which a student who has completed training acts as an instructor to another student.

Performance-Based Vocational Education – an educational program in which the tasks (or skills) to be acquired and demonstrated by the student as well as the criteria (standards) to be applied in assessing the performance of such tasks (skills) are made explicit, in advance of instruction; the instruction is organized around those tasks (skills); and the student is held accountable for meeting these criteria.

Performance guide – a series of steps, arranged in a sequence ordinarily followed which, when completed, should result in the performance of a task.

[2] *Individualizing Instruction for Competency-Based Education.* (Tallahassee, FL: State of Florida, Department of State, 1976), p. 25.

Performance objective – a statement in precise, measurable terms of a particular behavior to be exhibited by the student under specified conditions. (In a V-TECS catalog, the performance objectives are based on actual job performance.)

Personalized Instruction – objectives are selected by the learner; learning activities are selected by the instructor.

Prescribed Instruction – both the objectives and learning activities are predetermined by the instructor.

Prerequisites – those competencies a student is expected to demonstrate before he/she begins to work on a particular instructional module.

Pre-test – a test given prior to instruction to determine technical skills and knowledges a student possesses in a given subject.

Process evaluation – a form of evaluation that rates each step of a task.

Product evaluation – a form of evaluation that rates the end result of a student's effort.

Psychological sequencing – sequencing instructional content from simple to complex, from known to unknown or from concrete to abstract.

Psychomotor learning – behavior exhibited by the learner dealing with the development of a manipulative or motor skill.

Self-check – a test, usually cognitive, designed to provide positive reinforcement and increase student confidence.

Self-directed Instruction – objectives are selected by the instructor, learning activities by the student.

Self-pacing – an arrangement whereby provision is made for the individual student to set his/her own schedule for learning or rate of achievement and to monitor his/her own progress. [3]

[3] Carter V. Good, ed., *Dictionary of Education* (New York: McGraw-Hill Book Company, 1973), p. 525.

Simulation – a training device or a training situation which makes use of hypothetical situations or equipment (other than actual equipment) for training.

Simulator – a training device used to serve as a substitute for the actual device to provide practice.

Stanine Values – used in a cross-reference table to identify the percentage of time spent on a particular task. Values range from 9 (most amount of time spent) to 1 (least amount of time spent).

Subjective evaluation – an evaluation influenced by the evaluator's personal experiences and/or prejudices.

Subject matter unit – a unit of instruction built around related principles, concepts, or facts.

Task – a unit of work activity which constitutes logical and necessary steps in the performance of a duty. A task has a definite beginning and ending point in its accomplishments and generally consists of two or more definite steps.

Task Criticality – the characteristic of a task statement which makes its accomplishment crucial to an acceptable performance on the job.

Task Difficulty – the degree of simplicity or complexity of a task.

V-TECS – Vocational-Technical Education Consortium of States – an organization with representation from 18 states and 2 agencies working to develop valid catalogs of performance objectives, criterion-referenced measures and performance guides.

V-TECS catalog – a collection of performance objectives, criterion-referenced measures, performance guides and related information organized by job structure within a group of related jobs.

ANSWER KEYS

Modules 1-9

MODULE 1

Answer Key

1. c
2. a
3. c
4. c
5. b
6. Step 1 – f
   Step 2 – e
   Step 3 – d
   Step 4 – a
   Step 5 – h
   Step 6 – g
   Step 7 – b
   Step 8 – c
7.

PBVE	Non-PBVE
1	3
2	4
5	6
9	7
10	8
11	13
12	14

MODULE 4

Answer Key

1. c
2. d
3. c
4. e
5. d
6. a
7. b

MODULE 2

Answer Key

1. d.
2. b
3. a
4. a
5. b
6. c
7. a
8. b
9. a
10. c

MODULE 5

Answer Key

1. c
2. 1. d
   2. b.
   3. c.
   4. a
3. a
4. e
5. b
6. c
7. a
8. b
9. a
10. e

MODULE 3

Answer Key

1. c
2. d
3. 4 – a
   1 – b
   2 – c
   3 – d
4. a
5. d
6. c

MODULE 6

Answer Key

1. a
2. b
3. d
4. b
5. b
6. c
7. a
8. b
9. c
10. b

MODULE 7

Answer Key

1. d
2. b
3. d
4. d
5. a
6. d
7. a
8. d
9. a
10. a

MODULE 8

Answer Key

1. b
2. c
3. b
4. e
5. d
6. d
7. d
8. b
9. c
10. d

MODULE 9

Answer Key

1. b
2. c
3. d
4. c
5. b
6. b
7. b
8. d
9. c
10. d

Name_____

TEST

Date_____

DIRECTIONS: Circle, match or write in the answer or answers to each question on the test.

1. A major reason for an interest in performance-based education is:

   a. to emphasize knowledge as the basic curriculum

   b. to emphasize basic subject matter as the "building stone" of the curriculum

   c. to make educational effectiveness more measurable

   d. to provide a system of individualized instruction

2. The definition of performance-based education is:

   a. an educational program in which the tasks (or skills) to be acquired and demonstrated by the student as well as the criteria (standards) to be applied in assessing the performance of such tasks (skills) are made explicit in advance. The student is held accountable for meeting these criteria.

   b. that organization of instructional materials which will permit each student to progress in accord with his/her own abilities and interests and which provides instructional guidance and assistance (usually by a teacher) to individual pupils in accordance with their needs.

3. Which of the following is not one of the three major approaches to implementing PBVE in South Carolina?

   a. group

   b. self-paced

   c. open entry–open exit

   d. combination

4. Which of the following is not a concept inherent in the strict definition of PBVE?

   a. standards for evaluation are made known in advance

   b. the final test is always actual performance or mastery of the task

   c. the mode of instruction is individualization

   d. instruction is based on validated job-relevant tasks

5. Which of the following is not usually included in a fully individualized performance-based education program?

   a. self-pacing

   b. norm-referenced evaluation

   c. open entry–open exit scheduling

   d. flexibility of time

6. Match the steps in the plan for implementing performance-based vocational education:

Step 1	a. classroom delivery system
Step 2	b. classroom implementation plan
Step 3	c. review
Step 4	d. development of objectives, etc.
Step 5	e. task identification
Step 6	f. needs assessment
Step 7	g. field test
Step 8	h. management plan

7. Classify each of the following program descriptions as to whether it is a characteristic of a PBVE or a non-PBVE program. Indicate your classification on a separate sheet of paper. Simply make two headings PBVE and Non-PBVE and place only the number of the characteristic under the proper heading.

(SEE CHARACTERISTICS ON NEXT PAGE.)

PBVE	Non - PBVE

Characteristics of PBVE and Non-PBVE Programs* –

1. The main indicator of the student's achievement is his/her ability to do effectively the job for which he/she is preparing.

2. Time is not a factor. The student may finish earlier than others or take more time than usual if needed.

3. The main indicators of the student's achievement are his/her knowledge of the subject and ability to tell how the job for which he/she is preparing may be done effectively and efficiently.

4. The student operates within a specified time frame, such as an academic year or semester. Requirements of clock hours of instruction are generally adhered to.

5. The criterion of success is demonstrating one's ability to do the job. Mastery criteria are used to determine how well the student performs. Students must satisfy these criteria if they are to be considered competent.

6. The criteria of success are school letter grades which indicate the extent to which the student knows the required subject matter.

7. Entrance requirements are important concerns. Students not meeting requirements are not admitted.

8. Students are scheduled for instruction into fairly rigid blocks of time. Confinement to the academic year and limited registration dates are standard practices.

9. There is a minimum of concern for entrance requirements. Students are accepted at their level and instruction is designed accordingly.

10. Flexible scheduling of learning activities is essential to provide for individual differences among students. This allows for year-round educational opportunities and frequent enrollment periods.

11. There are no fixed rules as to how, when, or where learning is to be accomplished.

12. Opportunities are provided to acquire competencies on the job or in practical field experiences.

13. On-campus classroom teaching is the most common approach to instruction. Lengthy on-campus required attendance is standard.

14. Practical field experiences are limited.

Adapted from:

*EPDA Regional Workshop, "Competency-Based Vocational Education: Principles, Prospects and Problems" – (unpublished paper, Lexington, KY, April 1976), p. 8.

TEST

DIRECTIONS: ON THE ANSWER SHEET, black out the correct answer.

1. The word, V-TECS, means:

   a. Vocational–Teacher Education Competency System

   b. Vocational–Technical Education Consortium System

   c. Vocational–Teacher Education Committee of States

   d. Vocational–Technical Education Consortium of States

2. The major purpose of V-TECS is to:

   a. provide a system of articulation between vocational and technical education

   b. produce catalogs of performance objectives, criterion-referenced measures, and performance guides

   c. produce task statements

   d. provide teacher-education committees with vocational goals of states

3. The five elements found on a typical page of a V-TECS catalog are:

   a. duty, task, performance objective, criterion-referenced measure, and performance guide

   b. duty, task, performance objective, norm-referenced measure, and performance guide

   c. duty, domain, task, performance objective, and performance guide

   d. domain, task, performance objective, criterion-referenced measure, and performance guide

4. Which of the following lists comprise the components of a performance objective?

   a. condition, behavior, standard

   b. givens, behavior, condition

   c. criteria, standards, condition

   d. behavior, standard, criteria

5. Which of the following is not provided by a performance objective?

   a. the standard of proficiency

   b. a task analysis

   c. conditions for task performance

   d. behavior required of student

6. Which of the following is a complete performance objective?

   a. Prepare and bake one pan each of corn bread made with sour milk and sweet milk. A checklist will be used to rate performance.

   b. Given a loom, basic tool kit and gauge for loom being used, check and adjust lay centering.

   c. Given access to a parts manual and interchange guide, identify ten interchangeable parts. At least 95% of the parts to be interchanged must be correctly identified.

   d. Given a case situation describing a day-care center and a daily schedule for the center, plan activities which would be needed to complete a program for a specific month of the year.

7. Which of the following is a criterion-referenced measure?

   a. Your instructor will provide you with a petty cash record book and the other information you will need to maintain a petty cash account. Maintain the account for ten days according to established office procedures.

   b. Make a cut and restart cut in ¼" mild steel.

   c. Using basic tool kit provided by your instructor, assemble the breast beams on a loom.

   d. Hand sharpen cutting tools with abrasive stones.

8. Criterion-referenced measures are useful in instruction. Select the response which is not a use of the criterion-referenced measure:

   a. aids in designing instruction

   b. aids in setting course and program goals

   c. aids in determining student's ability to perform

   d. aids in evaluating instruction

9. For the following performance objective select the most correct and complete list of proficiencies required by the student.

   Given standardized recipes, supplies, and equipment, prepare one pan each of three types of biscuits (sour milk, baking powder, and drop). A checklist will be used to rate performance. All items must receive an acceptable rating.

   a. Ability to read and follow a recipe, knowledge of appropriate food preparation equipment and ingredients, understand food preparation techniques, knowledge of temperatures and time required for baking.

   b. Knowledge of appropriate food preparation equipment and ingredients, understand food preparation techniques, knowledge of temperature and time required for baking; techniques to follow when serving.

   c. Understand food preparation techniques, knowledge of temperature and time required for baking, techniques to follow when serving, ability to read and follow a recipe, knowledge of appropriate food preparation equipment and ingredients.

   d. Knowledge of appropriate food preparation techniques, techniques to follow when serving, knowledge of temperature and time required for baking, understand food preparation techniques.

10. For the following performance objective select the most correct and complete list of attitudes required by the student.

    Given a case situation requiring the placing of a telephone call, place the call. All items must receive an acceptable rating.

    a. Feel sense of duty toward job, record information, have desire to display courtesy and reflect positive image of employer.

    b. Feeling of pride in self and employer, record information, have desire to display courtesy and reflect positive image of employer.

    c. Have desire to display courtesy and reflect positive image, have feeling of pride in self and employer, feel sense of duty toward job.

    d. Have feeling of pride in self and employer, feel sense of duty toward job, record information, display courtesy and reflect positive image of employer.

TEST Name _____

Date _____

DIRECTIONS: Circle, match or write in the answer or answers to each question on the test.

1. Which of the following statements is true of a V-TECS catalog of performance objectives?

   a. they provide the only known source of performance objectives for vocational education

   b. they contain mainly cognitive objectives

   c. they contain mainly psychomotor objectives

   d. they contain mainly affective objectives which provide a more activity-oriented curriculum

2 Course objectives are usually clustered for which of the following reasons?

   a. to provide convenience for the instructor

   b. to provide convenience for the student

   c. to enhance individualized instruction

   d. to make the learning of relationships easier

3. Match the following definitions:

___ a.	a unit organized around similar content (subject matter), concepts or principles.	1. Functional unit 2. Basic subject matter unit 3. Basic functional unit 4. Subject matter unit
___ b.	a unit organized around similar activities, tasks, projects or problems.	
___ c.	a unit made up of subject matter concepts, principles, facts, common to several subject matter units.	
___ d.	a unit, task oriented and common to several other task-oriented units.	

TEST, cont.

4. Performance objectives and tasks in V-TECS catalogs are usually clustered by similar:

   a. duties

   b. problems

   c. concepts

   d. principles

5. Which of the following statements is not recommended in sequencing?

   a. Place easy-to-learn objectives early in the sequence.

   b. Sequence objectives so that the output of one objective serves as input of the next.

   c. Arrange procedural skills in the order required on the job.

   d. Place the more complex objectives early in the sequence.

6 Which of the following statements is true?

   a. none of the performance objectives listed in the V-TECS should be deleted.

   b. only objectives which are too complex to be taught at the secondary level should be deleted.

   c. objectives which do not fit the broader course objectives should be deleted.

   d. cognitive objectives should not be added.

Name_____

TEST

Date_____

Directions: Circle, match or write in the answer or answers to each question on the test.

1. Which of the following statements is true?

   a. In order to be performance-based, an instructional program must be self-paced.

   b. In a truly self-paced instructional program, students cannot participate in group activities.

   c. An instructional program can be performance-based and use either or both the group or the self-paced method (mode).

   d. Group-paced instruction requires that students be given freedom of time for mastery and self-instructional materials.

2. Which of the following is not an absolute essential element in a module to be used for self-paced instruction in a performance-based education program?

   a. a performance objective

   b. student directions

   c. provisions for exemption

   d. self-checks

3. Which of the following statements is true?

   a. Performance-based vocational education via the group method makes criterion-referenced measurement easier to accomplish.

   b. At this time most materials in vocational education are packaged as self-directional, self-instructional modules.

   c. Self-pacing requires freedom of time to master a given task.

   d. Low ability students usually perform better in a self-paced program.

4. Which of the following factors should be considered before determining the appropriate method (mode) of instruction?

   a. Freedom of time, mastery learning, and availability of instructional materials

   b. Nature of instruction, student capabilities, instructional time, financial constraints

   c. How students will be evaluated

   d. Necessity for all students to receive the same amount of instruction.

   e. All of the above

5. Which statement is true?

   a. Learning Activity Package and Module are interchangeable terms.

   b. Learning Activity Packages and Modules are used for very different instructional purposes.

   c. Learning Activity Packages are "self-contained" while modules are not.

   d. Learning Activity Packages do not usually contain instructional content.

   e. All of the above.

6. Which method of instruction has a greater "short run" cost?

   a. self-paced

   b. group-paced

7. Which of the following statements is true?

   a. a supportive (subordinate) cognitive or affective objective is required for each performance objective.

   b. modules developed around cognitive objectives which are common to several performance objectives or tasks are sometimes required to prevent redundancy.

   c. cognitive or affective objectives must always be subordinate to a higher order performance objective.

   d. performance guides provided in the V-TECS catalogs seldom require more detailed analysis.

Name_____

TEST Date_____

DIRECTIONS: Circle, match or write in the answer or answers to each question on the test.

1. Performance-based education:

   a. dictates the use of individualized instruction

   b. is contingent upon individualized instruction

   c. is enhanced by individualized instruction

   d. is totally unrelated to individualized instruction

2. Match the following descriptions and types of individualized instruction:

DESCRIPTION	TYPES OF INDIVIDUALIZED INSTRUCTION
1. – objectives are determined by the course designer or instructor, while learning activities are selected by the student.	a. Personalized instruction b. Independent instruction c. Prescribed instruction d. Self-directed instruction
2. – students are given the freedom to choose both learning activities and objectives.	
3. – student freedom is restricted in that both objectives and learning activities are predetermined.	
4. – students are given the freedom to select objectives, but learning activities are determined by the course designer or teacher.	

3. Which of the following forms of individualized instruction provides the highest degree of student freedom?

   a. Independent study

   b. Personalized study

   c. Self-directed study

   d. Prescribed study

4. Which of the following forms of instruction can be self-paced?

   a. Independent study

   b. Personalized study

   c. Self-directed study

d. Prescribed study

e. All of the above

5. Possibly the most basic of the concepts involved in individualization of study is:

a. Self-pacing

b. Freedom of choice

c Variety

d. Time

6. Possibly the major purpose of individualized instruction is:

a. to provide a vehicle for delivering performance-based vocational education

b. to facilitate the concept of open entry–open exit education

c. to better meet the interests, needs and goals of students

d. to facilitate the concept of self-pacing

7. Self-paced instruction always provides freedom:

a. to select or use the amount of time needed

b. to select performance objectives

c. to select learning activities

d. to select performance standards

8. Most self- directional, self-instructional modules currently provide the student with:

a. freedom to select performance objectives

b. freedom to select optional learning activities

c. freedom to select performance standards

d. freedom to select instructors

e. all of the above

9. One of the most practical forms of individualized instruction for vocational education at the secondary level is:

a. Prescribed study

b. Independent study

c. Personalized study

d. Self-directed study

10. Which of the following suggestions aid in individualizing instruction?

a. make student interests and goals the major focus of program planning

b. provide a variety of learning activities

c. provide a variety of media

d. provide the student freedom of time to achieve

e. all of the above

Directions: ON THE ANSWER SHEET, black out the correct answer.

1. Student evaluation in performance-based instruction is based on

   a. criterion-referenced tests

   b. norm-referenced tests

   c. diagnostic tests

   d. written tests

2. The type of evaluation that requires the instructor to observe each step of a performance is entitled

   a. product evaluation

   b. process evaluation

   c. combination evaluation

   d. written evaluation

3. Which level of learning tests creativity?

   a. analysis level

   b. application level

   c. evaluation level

   d. synthesis level

4. When writing completion items

   a. indicate the answer by the length of the blank

   b. use questions if possible

   c. place blank at the beginning

   d. give leading clues

5. Attitude evaluation is inherently

   a. ineffective

   b. subjective

   c. objective

   d. directive

6. A grading method that is used when the quality of work falls into two distinct categories is

   a. true/false

   b. point assignment

   c. pass/fail

   d. combination approach

7. A list of tasks and the individual student's rating for each task is

   a. a skills proficiency record

   b. a wall chart of student's progress

   c. an individualized progress chart

   d. a certificate

8. Which of the following is the more time consuming?

   a. product evaluation

   b. process evaluation

   c. combination evaluation

   d. norm-referenced evaluation

9. The items on an instructor's final checklist mirror the

   a. performance objective

   b. criterion-referenced measure

   c. performance guide

   d. learning activities

10. Attitude is frequently evaluated via

    a. a written test

    b. a rating scale

    c. a diagnostic test

    d. a true/false test

TEST

Directions: Circle, match or write in the answer or answers to each question on the test.

1. The introduction of a module
   a. is longer than 100 words
   b. is written in past tense
   c. is used to define technical terms
   d. is written in second person form
2. Which of the following is an acceptable module title?
   a. Ornamental Horticulture
   b. Cashing checks
   c. A Review of Journal Entries
   d. Recipes for Milk-Based Soups
3. The directions of a module
   a. guide the student to the final test if desired
   b. alert the student to pre-requisite skills
   c. advise the student as to how to begin
   d. all of the above
4. The module writer should:
   a. use the active rather than the passive voice
   b. define technical terms
   c. write to the student and for the student
   d. all of the above

5. The module Self-Check

   a. reinforces learning

   b. evaluates final performance

   c. evaluates attitudes

   d. is evaluated by the instructor

6. The Instructor's Final Checklist is used to

   a. evaluate the student's performance at specific intervals

   b. evaluate the student's final performance

   c. diagnose student weakness

   d. all of the above

7. Check-out activities are

   a. criterion-reference measures

   b. practice activities

   c. remedial instruction

   d. teacher demonstrations

8. The check-out activities are:

   a. sometimes the same as the performance objective (when the objective is explicitly stated).

   b. sometimes the same as the criterion-referenced measure.

   c. sometimes required as a part of the instructor's final checklist

   d. all of the above

9. Which of the following is <u>not</u> used to present content in a module?

   a. check-out sheet

   b. assignment sheet

   c. job sheet

   d. work sheet

10. *Check your knowledge on spark plugs by completing Student Self-Check I.* This sentence is a

    a. learning activity statement

    b. performance objective

    c. a criterion-referenced measure

    d. Instructor's Final Checklist

Name_____

Date_____

TEST

Directions: Circle, match or write in the answer or answers to each question on the test.

1. Self-pacing as commonly used with self-directional, self-instructional modules, usually results in which of the following forms of individualized instruction?

   a. personalized instruction

   b. prescribed instruction

   c. self-directed instruction

   d. independent study

2. Which of the following is true of self-pacing?

   a. capable students are often delayed by slower students

   b. students are not given freedom of time for mastery

   c. the use of modules designed for self-pacing may overly fragment course instruction

   d. program validity is more difficult to measure than when using the group method

3. As compared to teachers using the group method, teachers using the self-paced method of instruction:

   a. spend more time lecturing

   b. spend more time in the role of manager of the instructional process

   c. spend more time preparing group activities and discussions

   d. spend more time planning group projects, field trips, etc.

4. Which of the following is an essential concept or characteristic of self-paced instruction?

   a. self-directional, self-instructional materials

   b. modules or learning activity packages as the major method of packaging materials

   c. freedom of time for mastery

   d. independent evaluation

   e. all of the above

5. Which of the following statements are true?

   a. learning kits save student and teacher time, in that tools and materials for performing a selected task are packaged and stored together.

   b. learning stations save student and teacher time because equipment and media needed are gathered at a central location.

   c. simulators are often essential to provide simulated learning activities not practical to provide as a real or actual experience.

   d. all of the above

6. As opposed to facilities for programs utilizing the group method, programs utilizing the self-paced method will have greater need for:

   a. learning carrels

   b. learning stations

   c. learning kits

   d. all of the above

7. As opposed to group programs, self-paced programs:

   a. require less effort on the part of the teacher.

   b. guarantee that the student's individual interest, needs and learning styles are met.

   c. are less expensive to set up and operate

   d. allow student freedom of time for mastery.

8. Slower students in a self-paced program respond best:

   a. to scholastic pressure

   b. to frequent practice and drill

   c. to independent study

   d. to the more abstract (theoretical) type learning situation.

9. More capable students, in a self-paced program, respond best to:

   a. repetition and drill

   b. concrete, "hands-on," type learning experiences

   c. reasonable scholastic pressure

   d. all of the above

10. Which of the following techniques are recommended for helping the more capable student?

   a. providing refinement skill activities

   b. maintaining high expectations

   c. examining student's work critically and positively

   d. all of the above

TEST

DIRECTIONS: ON THE ANSWER SHEET, black out the correct answer.

1. Which of the following is the best procedure for instructors to use to validate a contemporary program for job relevance?

   a. comparing supply lists and course expenditures in V-TECS catalogs with current course materials

   b. comparing objectives found in the V-TECS catalogs with current course objectives

   c. comparing textbooks and other references found in V-TECS catalogs with current course references.

   d. comparing course building lists in V-TECS catalogs with current course objectives

2. V-TECS catalogs can be used by vocational instructors and administrators to provide program accountability because:

   a. V-TECS catalogs actually document the exact amount of time required to perform a task on the job

   b. V-TECS catalogs actually document the number of tasks students should be required to perform on the job.

   c. V-TECS catalogs actually document the tasks workers say they perform on the job

   d. V-TECS catalogs actually document the difficulty and the criticality of tasks performed by workers on the job.

3. Which of the following does <u>not</u> occur when building a vocational program?

   a. review catalog content

   b. group related tasks

   c. identify gaps in task information

   d. sequence testing items

4. Which of the following teaching strategies is most appropriate for teaching attitudes?

   a. written tests

   b. field trips

   c. case studies

   d. lecture

5. Which of the following resource lists is provided by V-TECS catalogs?

   a. Annotated Bibliography and Reference Standards

   b. Reference for Standards and State-of-the-Art Literature

   c. State-of-the-Art Literature and Master List of References

   d. Master List of References and Annotated Bibliography

6. Why is a V-TECS catalog a useful aid to counselors and other teachers?

   a. it includes a system for reviewing existing student records

   b. it provides prerequisite information via the performance guides

   c. it contains a follow-up procedure for graduates

   d. it suggests a placement procedure

7. Modules are an effective method for a teacher to use when

   a. students need punishment

   b. students need supplementary activities

   c. students are poor readers

   d. students are potential dropouts

8. Instructor's Checklists should

   a. address each step of a performance guide

   b. address process evaluation only

   c. address product evaluation only

   d. address critical steps requiring evaluation only

9. Peer tutoring provides the greatest benefit to

   a. the instructor

   b. slow students

   c. students who tutor others

   d. accelerated students

10. Which of the following approaches to instruction are appropriate in a contemporary program?

a. lecture, field trip, motion/still pictures with sound

b. direct purposeful experience, simulated experience

c. demonstration, role play

d. all of the above

PBVE – ANSWER SHEET

NAME _____

MODULE NUMBER	1	2	3	4	5	6	7	8	9
DATE	/	/	/	/	/	/	/	/	/

Module 1

(Black out correct answer or complete, if indicated)

1. a b c d e
2. a b c d e
3. a b c d e
4. a b c d e
5. a b c d e

(Write letter in proper space)

6. (1) ____ (2) ____
   (3) ____ (4) ____
   (5) ____ (6) ____
   (7) ____ (8) ____

(Write numbers in a space in the proper column)

7.

PBVE	Non-PBVE

Module 2

(Black out correct answer)

1. a b c d e
2. a b c d e
3. a b c d e
4. a b c d e
5. a b c d e
6. a b c d e
7. a b c d e
8. a b c d e
9. a b c d e
10. a b c d e

Module 3

(Black out correct answer or complete, if indicated)

1. a b c d e
2. a b c d e
3. a ____ b ____
   c ____ d ____
4. a b c d e
5. a b c d e
6. a b c d e

Module 4

(Black out correct answer)

1. a b c d e
2. a b c d e
3. a b c d e
4. a b c d e
5. a b c d e
6. a b c d e
7. a b c d e

Module 5

(Black out correct answer or complete, if indicated)

1. a b c d e
2. (1) ____ (2) ____
   (3) ____ (4) ____
3. a b c d e
4. a b c d e
5. a b c d e
6. a b c d e
7. a b c d e
8. a b c d e
9. a b c d e
10. a b c d e

Module 6

(Black out correct answer)

1. a b c d e
2. a b c d e
3. a b c d e
4. a b c d e
5. a b c d e
6. a b c d e
7. a b c d e
8. a b c d e
9. a b c d e
10. a b c d e

Module 7

(Black out correct answer)

1. a b c d e
2. a b c d e
3. a b c d e
4. a b c d e
5. a b c d e
6. a b c d e
7. a b c d e
8. a b c d e
9. a b c d e
10. a b c d e

Module 8

(Black out correct answer)

1. a b c d e
2. a b c d e
3. a b c d e
4. a b c d e
5. a b c d e
6. a b c d e
7. a b c d e
8. a b c d e
9. a b c d e
10. a b c d e

Module 9

(Black out correct answer)

1. a b c d e
2. a b c d e
3. a b c d e
4. a b c d e
5. a b c d e
6. a b c d e
7. a b c d e
8. a b c d e
9. a b c d e
10. a b c d e

MASTER FORM FOR
PBVE – ANSWER KEY TRANSPARENCY

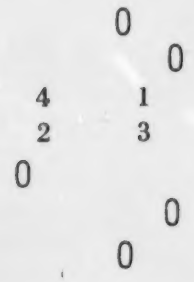
Module 1

f	e
d	a
h	g
b	c

1	3
2	4
5	6
9	7
10	8
11	13
12	14

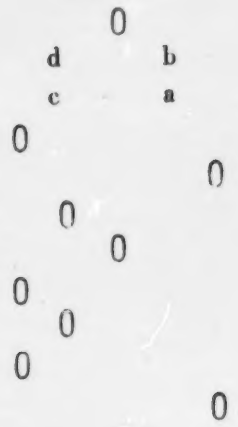
Module 2

Module 3

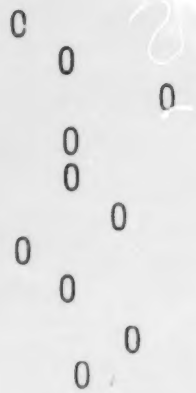


Module 4

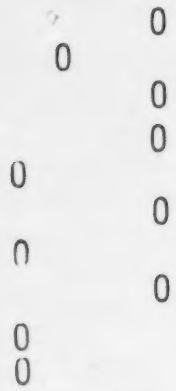
Module 5



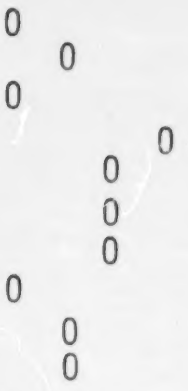
Module 6



Module 7



Module 8



Module 9